INTERTEK TESTING SERVICES

Analysis Report

The equipment under test (EUT) is a 2.1 CH Soundbar with Wireless Subwoofer. The EUT was powered by AC 120V, 60Hz. For more detail information pls. refer to the user manual.

For BT (4.2 single mode) function:
Modulation Type: GFSK, π/4DQPSK, 8DPSK.
Antenna Type: Integral antenna
Antenna Gain: 1.0dBi
The nominal conducted output power specified: -1dBm (Tolerance: +/- 4dB)
The nominal radiated output power (e.i.r.p) specified: 0dBm (Tolerance: +/- 4dB)

The minimum conducted output power for the EUT is -5.00dBm in the frequency 2441MHz of BT 4.2 which is within the production variation.

The maximun conducted output power for the EUT is -4.53dBm in the frequency 2402MHz of BT 4.2 which is within the production variation.

According to the KDB 447498:

The maximun conducted output power specified is 3dBm = 2.0mW
The source- based time-averaging conducted output power
= 2.0 * Duty cycle Mw < 2.0 mW (Duty Cycle<100%)

The SAR Exclusion Threshold Level:
= 3.0 * (min. test separation distance, mm) / sqrt(freq. in GHz)
= 3.0 * 5 / sqrt (2.480) mW
= 9.5 mW

Since the source-based time-averaging conducted output power is well below the SAR low threshold level, so the EUT is considered to comply with SAR requirement without testing.

For 2.4GHz transmit function and operating frequency is 2404.5-2479.5MHz
Modulation Type: GFSK
Antenna Type: Integral antenna
Antenna Gain: 0dBi

The nominal conducted output power specified: -1dBm (Tolerance: +/- 3dB)
The nominal radiated output power (e.i.r.p) specified: -1dBm (Tolerance: +/- 3dB)

According to the KDB 447498:

The maximum radiated emission for the EUT is 95.6dBμV/m at 3m in the frequency 2479.50MHz
= [(FS*D) ^2 / 30] mW
= 0.37dBm which is within the production variation.

The minimum radiated emission for the EUT is 91.7dBμV/m at 3m in the frequency 2404.5MHz
= [(FS*D) ^2 / 30] mW
= -3.53dBm which is within the production variation.

The maximun conducted output power specified is 2.0dBm = 1.58mW
The source- based time-averaging conducted output power
= 1.58 * Duty cycle mW< 1.58mW (Duty Cycle < 100%)

The SAR Exclusion Threshold Level:
= 3.0 * (min. test separation distance, mm) / sqrt(freq. in GHz)
= 3.0 * 5 / sqrt (2.4795) mW
= 9.5 mW

Since the source-based time-averaging conducted output power is well below the SAR low threshold level, so the EUT is considered to comply with SAR requirement without testing.

Simultaneous transmissions for both BT module and 2.4GHz module

According to the KDB 447498:

When both BT module and 2.4GHz module are simultaneous transmissions,
The maximum conducted power for BT transmitter is 3dBm (2.0mW),
The maximum conducted power for 2.4G transmitter is 2dBm (1.58mW),

In the simultaneous transmissions, BT transmitter estimated SAR values:
= (max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm) * [sqrt(freq. in GHz)/7.5] W/kg
= 2 / 5*[sqrt (2.480) / 7.5] W/kg
= 0.084 W/kg

In the simultaneous transmissions, 2.4GHz transmit's estimated SAR values:
= (max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm) * [sqrt(freq. in GHz)/7.5] W/kg
= 1.58 / 5*[sqrt (2.4795) / 7.5]
= 0.066 W/kg

Sum of 1-g SAR of all simultaneously transmission operating mode:
BT transmitter estimated SAR + 2.4GHz transmitter estimated SAR
= 0.084 + 0.066 W/kg
= 0.15 W/kg

The SAR Exclusion Threshold Level: ≤ 0.4 W/kg